

REMARKS

Please amend claims 1 and 14. Claims 3, 4, and 9-13 are withdrawn due to a species restriction requirement. The application now includes claims 1, 2, 5-8, and 14-20 for consideration on the merits. Favorable reconsideration of this application as amended is requested.

Claim Rejections Under 35 U.S.C. § 102(b):

Claims 1, 2, and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Hamai et al.

The examiner, in reciting how Hamai et al. is believed to read on claim 1 of the present invention, states that Hamai et al. shows "at least one flexible member (14) connected between the ISG rotor support (8a-17-16a-16b-14-3-10) and the impeller such that the ISG rotor is rotationally coupled to the impeller." Applicant respectfully disagrees in that applicant believes that the circuitous and involved connections that the examiner states are the "ISG rotor support (8a-17-16a-16b-14-3-10)" is many other elements besides a rotor support. Element (8a) is a rotor support, but element (17) is a drive shaft for the transmission, elements (16a) and (16b) are coils associated with a lock-up clutch, and element (14) is a conventional flex plate bolted to a torque converter cover (3) that is mounted to an impeller pump (10). Thus, Hamai et al. does not anticipate claim 1 of the present invention.

However, for the sake of clarity, applicant has amended claim 1 to indicate that the "flexible member" is both "located and connected between the ISG rotor support and the impeller such that the ISG rotor is rotationally coupled to the impeller. The conventional flex plate (14) shown in Hamai et al. is located between the crankshaft (18) and the torque converter cover (3) rather than between the rotor support (8a) and the impeller (10).

Claims 2 and 8 depend from claim 1 and so are patentable over the cited art for at least the same reasons as amended claim 1. Additionally, claim 2 recites that "the at least one flexible member is an ISG flex plate." Hamai et al. does not teach or suggest the use of an ISG flex plate. The only flex plate is a conventional flex plate (14) that is bolted in a conventional fashion

between the crankshaft (13, 18) and the torque converter cover (3). Moreover, Hamai et al. would teach away from the use of an ISG flex plate located and connected between the ISG rotor support and the impeller because it includes a stationary inner torque converter housing (30) that is mounted between and completely separates the impeller (10) from the rotor support (8a). As for claim 8, Hamai et al. shows a rotor support (8a) that follows the contour of the inner torque converter housing (30), but the rotor (8) is just shown as a pure cylinder having a rectangular cross section.

Claim Rejection Under 35 USC § 103(a):

Claims 5-7, and 14-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hamai et al. in view of Miyakawa.

Claims 5-7 depend from amended claim 1, and, as indicated above, Hamai et al. does not read on claim 1. Moreover, the limitations of amended claim 1 are not taught or suggested by Miyakawa either. In Miyakawa, the motor housing, stator, rotor support and rotor are all located between the engine and the torque converter, with the rotor support bolted directly to and always spinning at the same speed as the crankshaft. This is a significantly different arrangement than one where the stator, rotor support and rotor are located between the torque converter and the transmission, with the rotor support mounted on and always spinning at the same speed as the transmission input shaft, as is the case with Hamai et al.

Regarding claim 14, it is not just a combination of claims 1 and 5. Claim 14 has been amended to correct an informality where the same bearing was inadvertently claimed twice. Claim 14, as originally filed, includes "an ISG rotor support riding on ISG bearings and mounted to the housing, with the impeller hub supported by the ISG rotor support, an ISG rotor mounted on the ISG rotor support adjacent to the ISG stator, and a rotationally rigid, axially flexible member connected between the ISG rotor support and the impeller such that the ISG rotor is rotationally coupled to the impeller." Neither of the cited references teach or suggest the impeller hub being supported by the ISG rotor support. In fact, both references teach away from this in that Hamai et al. has an inner torque converter cover housing (30) that would prevent such an arrangement, and Miyakawa has its rotor mounted on the opposite side of the torque converter

so that the rotor support is not even in proximity to the impeller hub. Therefore, claim 14 is not obvious in view of the cited references.

Claims 15-20 all ultimately depend from claim 14 and so are patentable over the cited references for at least the same reasons as claim 14. Moreover, claim 15 recites that the rotationally rigid axially flexible member is an ISG flex plate; claim 16 recites that the assembly further includes a static seal contained between the impeller hub and the ISG rotor support; and claim 17 recites that the impeller includes an outer radial surface, and the ISG rotor includes an outer radial surface that is radially inward of the impeller outer radial surface. Also, claim 18 recites that the impeller has a generally semi-toroidal shape at a location adjacent to the motor-generator, and wherein the ISG rotor has a surface adjacent to the impeller that is shaped to match the shape of the impeller at the location; and claim 19 recites that the impeller has a generally semi-toroidal shape at a location adjacent to the motor-generator, and wherein the ISG rotor has a surface adjacent to the impeller that is shaped to match the shape of the impeller at the location. And, claim 20 recites that the ISG bearing comprises two spaced apart bearings.

Conclusion:

In summary, the Applicant believes that each formal and substantive requirement has now been met. Applicant respectfully requests the examiner withdraw all of the rejections. The case is now believed to be in appropriate form for allowance, which action is respectfully requested. If a telephone conference would advance the prosecution of this application or resolve any further questions, such a call is invited to Applicant's attorney, whose direct line is (734) 542-0017.

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